US Army Medical Research and Materiel

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Lethal Mosquito Breeding Container

This invention is a breeding container which can be made lethal to mosquitoes that attempt to lay eggs in it by the addition of insecticide to a small quantity of water in the container. This invention has many advantages over conventional methods and is superior to simply trapping mosquitoes and removing their eggs.

Worldwide, approximately 20 million dengue fever cases are diagnosed each year that are primarily transmitted by *Aedes aegypti* and *A. albopictus* mosquitoes. Conventional ground and aerial application of insecticides do not provide adequate mosquito control, which is a critical element of dengue disease prevention as a vaccine is not available. The *Aedes spp*. mosquitoes are container breeders, meaning that females only lay eggs in a container holding water. A need exists for an environmentally sound, simple, and cost-effective container that attracts female *Aedes spp.* mosquitoes and is lethal to both them and the larvae that hatch from the eggs they lay in the container.

In caged laboratory tests, up to 100 percent adult mosquito mortality has been demonstrated. The container and insecticide can be safely used in close proximity to human populations, including children, because the [illegible] of insecticide needed is of a very low quantity. Animal studies indicated a 20-pound child would need to consume 10 one-pint containers in a day that contained the proposed concentration of the insecticide deltamethrin before toxic effects occur. When the containers were flooded with the equivalent of 3 cm of rainfall on each of 6 different days, mosquito mortality was maintained at 50% or greater.

Features and advantages:

- **Can add a pheromone that attracts female mosquitoes to stand-alone breeding containers**
- **Uses an insecticide that is lethal to adult female container-breeding mosquitoes and developing larva**
- **Can be maintained by community-based control programs because of the simple design**
- **demonstrated average mortality rate of 95% one month after first**

Patent Status

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